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ROCKS and MINERALS

Official Journal
of the
Rocks and Minerals
Association



A Magazine for
Mineralogists,
Geologists and
Collectors

42
*Welcome
Home!*



"Send these,
The Homeless
Tempest-Tost to me,
I left my lamp
Beside the golden door"

— Incription on the Statue of Liberty

SEPTEMBER, 1945

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Vol. 20, No. 9

Whole No. 170

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THE ENCHANTED PUEBLO

BAYFIELD, COLORADO

ROCKS and MINERALS

PUBLISHED
MONTHLY



Edited and Published by
PETER ZODAC
September

1945

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ROCKS and MINERALS

PEEKSKILL, N. Y., U. S. A.

The official Journal of the Rocks and Minerals Association

CHIPS FROM THE QUARRY

TRIP SOUTH WAS ABANDONED

In the June, 1945, issue of *Rocks and Minerals*, we announced that the offices of *Rocks and Minerals* would be closed from June 22nd to July 1st, so that the Editor could go on a vacation to Rock Hill, S. C. Here he was to be the guest of Mr. and Mrs. Horace W. Slocum and do a little collecting, too. So many inquiries have been received regarding the trip — did the Editor have a nice vacation? — what did he collect? — etc., etc. — that we are forced to make a painful admission — we never reached Rock Hill!

We left Peekskill on June 22nd as planned but instead of taking a train out of New York City, we went by bus. (Our first long distance bus ride). We had heard a lot about the comforts and pleasure of a long distance bus ride and believed it. But our trip was anything but comfortable and a pleasure. The day was hot, the bus poorly ventilated, and no chance to eat except for light refreshments. By the time we reached Washington, D. C., we were almost a wreck. And to add to our troubles, the bus platform in Washington was so jammed with people we could hardly get on it to change buses — about 200 of them tried to get on the same bus that we had to get on with the result that it left without us. Tired, disgusted, and mad, we did not know whether to abandon the trip and

take the next bus to New York or to spend the night in Washington and continue the journey the next morning. But the hotels in Washington were overcrowded — where could we stay for the night? Fortunately we had friends in the city, one of whom is Mr. C. H. Robinson, President of the Mineralogical Society of the District of Columbia, to whom a phone call was soon made and from whom a most cordial welcome was received — "Get a taxi and come right up." The Robinsons greeted us warmly as they are the most friendliest of people.

The following day, however, we were still very tired and in no condition to continue the journey as Washington wasn't even half-way to Rock Hill. As we did not feel better by the second day, we abandoned the trip, sent Mr. Slocum a telegram to this effect, and returned to Peekskill on the third day.

A vacation is still due us and perhaps we will accept the invitation of Mr. and Mrs. R. L. Sylvester, of Syracuse, N. Y., to spend a few days with them. There are some interesting localities around Syracuse that we never visited and the city is not too far from Peekskill.

The August issue of *Rocks and Minerals* "was mailed on August 13th. When did your copy arrive?

AN INVITATION FROM A CANADIAN MEMBER

By BOB HADDEN

Aldersyde, Alberta, Canada

On the Highwood River one mile east of Aldersyde, in southern Alberta, Canada, there is a bed of blue clay filled with gypsum crystals that fluoresce a nice blue and the supply seems to be unlimited. Some of the crystals occur in balls, known as "desert roses". The writer has sent hundreds of them to collectors.

About 100 miles east of Aldersyde is

the famous dinosaur graveyard of Alberta. There you will find and see tons of agatized bone piled in the canyons. And there, too, is petrified wood encrusted with bluish chalcedony that fluoresces in different colors.

If any member of the R. & M. A. comes up this way, I will be only too glad to guide him around.

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MY COLLECTING TRIP TO EUROPE IN 1891

By GEO. L. ENGLISH

Editor's Note: Mr. English, who died on January 2, 1944, was one of the world's foremost mineralogists. He left *Rocks and Minerals* a large number of mineralogical pictures, literature, etc., and among them several unpublished articles of which this is one. We believe our readers would enjoy reading this intensely interesting article and so we feel it is a pleasure and a privilege to print it. He sailed for Europe from New York City.

It was one of those crisp, cloudless October mornings in 1891 that the Royal German Mail S.S. "Fulda" inaugurated its popular German Mediterranean service. It was a merry company chiefly of pleasure seekers, which sailed that morning, leaving all cares and thoughts of business behind them in the great city as the vessel steamed away from the throng of friends who waved handkerchiefs and hats as a God-speed to the happy voyagers. An ocean voyage is not particularly interesting to a mineralogist for he is likely to see but two minerals coal, which disappears in the steamer's fires at the rate of 130 tons a day, and water. Possibly it was on such a voyage that a certain so-called clergyman first conceived the idea of extracting from ocean's depths the millions of gold it is said to contain; certain it is that, after securing the gold—from what source we will leave the courts to decide—he found a trip to Europe essential to him. Probably, however, the sight would surprise even the best informed mineralogist if he could through some Alladin-like influence have all the gold now disseminated through the ocean separated and piled up before him. Then again, what a huge mountain, or range of mountains, would be formed, if all the Halite in the sea could be crystallized out. Would it not be a grand sight to see the splendid crystal peaks and caves, and if we could adorn them with all the other minerals in the ocean there would

be before us the grandest mineral locality in the world. Sometimes in those long hours on shipboard when there is no disposition to do anything but muse, there come to the mineralogist visions of cubes of diamond as large as a Macomb Fluorite, or cubes of garnet as distinct as a Colo. Pyrite, and we see two-inch lustrous cubes of Bixbyite modified with octahedrons, dodecahedrons, tetrahexahedrons and all the other forms, and Footite in sky-blue needles as large as Japanese stibnites, and Wardite in nodules as large as the professor's head, as gray as his eyes and as valuable as all of his great collections.

It is towards evening of our fifth day that we come in sight of the westernmost of the Azore Islands and it is a great delight to again see land. For three hours we steam towards the islands, whose bold mountains rise some 1500 or more feet above the sea. The setting sun is lighting them up with his last red rays as we approach, and after dark we pass so near to land that we can distinguish the lights on the shore. For three days more we continue our eastward journey, then a dispute arises among the passengers. One declares he has sighted land, another says it is only a cloud, others are uncertain whether it is a cloud or land, while a goodly number turn away in disgust and declare there positively is nothing there to see. But at last the shore looms up so plainly ahead of us that the disputings cease. It seems as though everybody is now on deck; field and opera glasses are brought out and the now distinct shore line is intently scanned. It is Portugal and many of us have never before seen this country. As we approach nearer, the curious, barren cliffs awaken more and more interest. Late in the afternoon we pass

Cape St. Vincent and everyone is delighted when we signal to the station there, knowing that we will be reported in the N. Y. papers the next morning. It is after midnight when we reach the great rock of Gibraltar and everyone is on deck expecting that we will land part of our passengers and proceed on our journey; but no — Gibraltar is a closed port at night and we have to lie to till morning. Though we are eager to reach our destination, the view of the great fortress the next morning well repays our loss of eight hours.

A Stop-off in Italy

Two and a half day's steaming on the Mediterranean past the Balearic Islands and the Riviera, brings us to our destination, Genoa in Italy. We stop here only long enough to glance at the Columbus monument and to send cablegrams home and then we are off by rail for Pisa. Half a day is all we can spare to see its justly famous leaning tower and to present our letter of introduction to Prof. D'Achiardi of the University and see their interesting collection of minerals, chiefly from Tuscany and Elba. There are many minerals here which we rarely see at home such as crystals of castorite and pollucite and fine crystallized meneghinite, and no host could welcome us with greater cordiality than the genial Italian Professor. It was really our first experience in trying to get along without knowing anything of the Italian language except the minerals and a very few conversational words, but it is marvellous how great a help even the slightest knowledge of a language is and how valuable becomes the little French which we still remember from our far-off school days. At Bologna we visit and greatly admire the important University collection, probably the largest and best in Italy, which is shown to us by the most courteous Prof. Bombari. A half-day here scarcely gives us an opportunity to familiarize ourselves with the ubiquitous bologna sausage, but we must hurry on to Florence to meet Prof. Grattarola and see the wonderful Elba minerals in the University collection there. Prof. Grattarola points out with much pride the finest crystal of Pollucite in the

world which cost 1000 francs, several fine Rosterites, a suite of elegant Tourmalines, and many other choice specimens. Rome is our next stopping place and the specimens there which most interested us were the wonderful Sicilian Hauerite crystals. The University at Rome has not only by far the largest crystals in the world — one of them about four inches from tip to tip of the octahedron — but also a series of rare forms of crystals which seem almost like a collection of crystal models. It is scarcely necessary for us to say that a visit to Rome was full of interest aside from the minerals we saw. The ruins of the stately Colosseum, the Forum with its score or more of ruined palaces and temples, the triumphal arches, the Capitaline and Palatine Hills, the Royal Palace, the Pantheon, St. Peter's, the Vatican, — these and scores of other sights in Rome make it difficult to tear ourselves away at the end of two days. A half-day's ride on one of the slow Italian Express trains brings us to Naples. We had been impatiently waiting to reach this place in reference to which a famous traveler once wrote — "see Naples and die." The panorama of the bay of Naples with its islands, with the mountains in the rear, and smoking Vesuvius just across the bay is certainly a charming picture, but that we were disappointed in it, we do not deny. The mineral collections in Naples are also far less attractive than we anticipated for we had heard so much of their wonderful sulphur specimens that when we found them inferior to the really poor series in the British Museum we were greatly disappointed. Our American collectors have far better sulphurs in their collections than are to be found in any of the great European collections. Of course we were interested in Vesuvius — the first active volcano we had ever seen, and in the roofless but otherwise remarkably well preserved houses of Pompeii. As we walk through the silent streets of this unearthed city, it seems almost incredible that ashes in quantities vast enough to completely bury the city could be deposited so far from the volcano itself. If time permitted and this were not an article for

mineralogists, it would be a temptation to us to describe some of many intensely interesting sights at Pompeii. Permit us, however, to relate a single incident of our visit. We went there on a train which stopped directly at the ruins, but on returning it was necessary to take an express from a station about a mile away. As we enjoyed walking, we determined to employ no cab for this short distance and this determination gave us an insight into the characteristic persistency of Italian cab drivers which could probably have been obtained in no other way. When we came out of the town gate we started off on a fast walk followed by a cabman who wanted *two francs* to drive us to our destination. He finally, after coming down to one franc, gave us up as a bad job. Then another *commenced* at one franc and came down to 75 centesimi, then to 60, 50, 40, 30, 25 and finally offered to carry us free and actually got off the cab and tried to pull us in! — a *very* smart dodge for the "tariff" is one franc and he could make us pay that if we yielded. Naples is the worst place we were ever in for sharks of all kinds and one is constantly annoyed by them, but specially by the cabmen, who have a habit of hissing to attract your attention. Cabs are very cheap, however, only 16c. for a drive of as much as half an hour.

A Visit to Athens, Greece

Leaving Naples we went by rail to Brindisi and there embarked for the Grecian harbor of Piraeus. The sail was a most pleasant one, notwithstanding the fact that there were no other first-class passengers. A short stop was made at the Island of Corfu, a favorite tourist resort, and then we steamed on again towards the fair Aegean Sea. When the sun rose on the morning of our third day out from Brindisi our prow was turned northward and shortly after breakfast we reached Piraeus, disembarking here, as at nearly all Grecian and Italian ports, by small rowboat. Custom house examination was quickly over and we were off by rail for Athens, only six miles distant. We were greatly surprised to find Athens a thoroughly modern city, with broad boulevards, well-paved streets, electric lights,

fine carriages, and sumptuously appointed hotels, and we doubt not Athens today has it trolley cars also. Our hotel faced the Place de la Constitution, a large square in front of the Royal Palace, which, with its magnificent gardens, is another of the sights of the new city. It gives us pleasure to say that by far the most beautiful building we have ever seen in Europe is one devoted to science—the Academy of Science in Athens. It is worthy of an elaborate description, but this would be out of place here; suffice it say that the structure is of the finest Pentelic marble, in the classic Ionic style. In the principal assembly room, ranged in graceful curves, are four tiers of white marble seats. Every appropriate place in the whole room is handsomely gilded and on the upper walls, completely surrounding the room, is painted a series of most beautiful scenes representing the myth of Prometheus. Near the Academy is the gaudy building of the University of Athens, also of white marble with a frieze of bright paintings around the top of the Ionic portico on the *outside* of the building, giving a very odd, though quite pleasing effect. The mineral collection at the University contains absolutely nothing of interest notwithstanding the richness of Greece in minerals. Prof. Mitsopoulos, the learned professor of mineralogy, welcomed us with truly oriental warmth, and did what he could to assist us in our efforts to secure Grecian minerals. It was for this purpose we visited Greece, and even the charm of the stately ruins of the Parthenon, the impressive Olympieion, the great theatres, the Roman baths, could not delay our departure for the great mineral locality of Laurium, which was the goal of our trip. We carried the strongest of letters to the American Minister to Greece, Col. Snowden of Philadelphia, and to the U. S. Consul, Prof. Manatt, and through their aid letters were secured from the Greek Director of Public Works, and others, to the Directors of the Hellenic and of the French Mining Companies. We were accompanied to Laurium by Mr. Bigelow, the Secretary of the U. S. Legation, whose assistance was peculiarly acceptable in this land

whose language even to the minerals was unknown to us. The railroad ride from Athens to Laurium gave us a good idea of Greece and the costumes of her peasants. Mt. Pentelikon, from whose quarries Athens has for thirty centuries derived her white marble, was passed en route. Arriving in Laurium, we had our first experience with a distinctly Grecian hotel — one where no English was spoken and we were compelled to make our wants known by the aid of the little French which was at our command. The difficulties of our position were, however, largely overcome by the aid of Mr. Bigelow and through the very great kindness of Mr. Cordello, the Director General of the Hellenic Company, who could not seem to do enough to make our visit pleasant and successful. To him and to Prof. Manatt we are chiefly indebted for the information in reference to the Laurium mines which we now propose giving to you, believing that it will prove of unusual interest.

Laurium Silver Mine—2400 Years Old

The Mining District of Laurium lies near the S. E. corner of Greece, some 60 miles by rail from Athens, in a rough mountainous region. The rocks of the district are mostly eruptive or metamorphic—diorite, trachyte, granite, mica-schist and limestone. The last named is the common associate of the ores. The mines of Laurium are the very ones from which Themistocles derived the silver to fit out his fleet and beat back the Persian invader at Salamis (490-480 B. C.). More than this, it is thought probable that the Phoenicians delved here before the Greeks came, so that the mining history at Laurium may possibly boast an origin as remote as thirty centuries back, while it is again in full blast today. In walking through the French company's great mine at Camaresa, in the heart of the Laurium region, one traverses here a gallery in active exploitation for zinc and lead, and hard by another worked out by the old Greeks two or three thousand years ago. These ancient works are among the most interesting monuments of Hellenic civilization. At Laurium are found two thousand ancient shafts, with

their connected galleries. These shafts average about 6 feet square and are sunk from 60 to 375 feet in depth, but never below sea-level. The galleries open into ancient chambers, sometimes 30 feet high and 150 feet wide. The ancients extracted from these mines a mass of ore yielding 2,000,000 tons of lead and 8,400 tons of silver, the total value being over \$800,000,000. The work employed steadily about 15,000 laborers, almost exclusively slaves. Earthen lamps, water-jugs, and picks are still found in some of the low, tortuous passages, through which a man must work his way on hands and knees. Slaves were cheap and the labor problem easy. That their lot was a cruel one must be evident. Blasting powder was a thing of the distant future and hoisting machinery practically unknown. The pulley may have been used in vertical shafts, but, as a rule, the ore — every bit of it chipped out with pick and hammer — had to be carried up in goat-skins on the slaves' backs. Very much the same method is still used in parts of the French Company's mines and we brought home one of the baskets now in use to tote ore out of the mines. The mines were government property, and were leased on a royalty of 1/24. As already stated the revenue resulting was devoted by Themistocles to building up a navy for Greece and it was this that gave the Greeks their great victory over the Persians at Salamis which saved the nation. The great Peloponnesian war seems to have checked the mining industry at Laurium and but little work was done during the next few centuries, and finally the mines were abandoned. It was not until 1860 that operations were again commenced. In that year, after seventeen centuries of neglect, Laurium entered upon a new era of exploitation. A French company obtained concessions and by applying more perfect processes to the slag and refuse left upon the surface by the ancients and still rich in metal, they soon established a most profitable industry. The ancients, mining chiefly for silver, left the lead ores largely, and the zinc ores completely intact. The moderns mine chiefly for lead and zinc, and silver is only a secondary pro-

duct. The French company was soon gleaning annually from this ancient waste 8,000 to 10,000 tons of lead containing 12 to 22 ounces of silver to the ton, and its successor (the Hellenic Mining Company, of Laurium) has since maintained about the same average. Though in the nature of things this surface industry is limited in extent and declining in importance, it is a subject of great historical interest. Some account of it must therefore be given. The materials operated upon are known as ecbolades and scoriae. The ecbolades are the ores rejected before smelting by the ancient operators. To lessen the burden of bare-back transportation from the bowels of the earth, the ores were first sorted in the mine and only the richer were carried out. Then at the surface, on resorting and washing, still more were rejected, thus forming surface heaps of ore all over Laurium. Hence the classification into interior and exterior ecbolades, of which the latter, with the ancient scoriae, constitute the original concession of the Hellenic company, while the former naturally go with the concession of the mines in which they are found, chiefly to the French company.

Most of the ecbolades contained an average of 5 to 6 per cent of lead, but some specimens have assayed as much as 17 to 18 per cent., these probably dating from a very early and imperfect stage of mining development. The Hellenic Government's commission for fixing the value of this surface concession estimated the quantity of ecbolades lying on the surface of Laurium at 60,000,000 tons, but they are now nearly exhausted.

Very rich scoriae are still obtained by dredging the adjacent sea, and it is in these immersed slags that mineralogists have discovered three species new to science, viz., Laurionite, Fiedlerite and Penfieldite. It may as well be freely confessed that there is not much room for enthusiasm over the large majority of the specimens of these slag minerals from Laurium, but if you could have seen the writer collecting them, you would doubtless have granted him the credit of possessing the maximum degree of enthu-

siasm which such minerals could arouse. Picture him attired in overalls with a heavy Grecian miner's hammer and a supply of ore baskets. The slag is in low heaps spread over a considerable area along the sea shore and is largely covered with mud and sea-weeds. In order to obtain the minerals it is necessary to break up the large pieces of slag, and a dirtier occupation can scarcely be imagined. The work recalled our childhood days when we were told that the first pair of wild chickens were produced by breaking open a rock from which the chickens promptly emerged, and our instructor declared that if we happened to strike the right rock today another pair of chickens would spring forth in the same manner. Such an idea is scarcely in accord with the Darwinian Theory, but it produced a sufficient impression on our childish memories to be recalled when in breaking up the blocks of slag at Laurium, there emerged from cavities apparently in the solid rock a number of curious many-footed worms. Our lady collectors would, we think, shrink from collecting minerals when, ever and anon, one of those hideous creatures would appear, and when the blows of the hammer spattered all kinds of mud and refuse over us, and water, too, for in other cavities a quantity of water was frequently found, while all through the slag were distributed pieces of charcoal from the fires of twenty to thirty centuries ago (We brought a piece of this slag to America to show collectors because it was so unattractive and because it strengthens their notion that a man who goes to Greece and collects such material must be a crank). Be this as it may, we were glad to have the opportunity of working on the Laurium slag heaps, for while the work was most disagreeable, it nevertheless was most interesting. Both Laurionite and Fiedlerite were minerals but recently described and were to be found in but few collections. No dealer, so far as we could learn, had ever visited Laurium, and we were there under the most favorable auspices. There was, therefore, the possibility of making a big haul. It is safe to say no one ever worked harder to succeed in a min-

eral trip. Early on the first day of our work we found a few specimens showing minute crystals of a hexagonal form, not at all like either Laurionite or Fiedlerite, and the conviction that we might have discovered a new species increased our zest for the work. The Penfieldite, for as such the mineral was subsequently described by the late Dr. Genth, was exceedingly rare and no really fine specimens were discovered during our stay. It was a satisfaction, however, to feel that at least one new mineral species had been added to the science as the result of our visit to Laurium. It is interesting to notice that the three minerals already mentioned have all been produced within historic times by the action of the sea water on the ancient slags. Several other minerals have also been similarly produced at Laurium, but owing to their occurrence elsewhere in far finer specimens but little notice has ever been taken of them. All of these Laurium slag minerals are compounds of lead, the three new species are oxy-chlorides; another, phosphogenite, is a chloro-carbonate, while the other two, Cerussite and Anglesite, are respectively a simple carbonate and a sulphate. Owing to the existence of three oxy-chlorides of lead at Laurium, it would seem natural to find there the other two oxy-chlorides of lead, Matlockite and Mendipite, which have been known for half a century or more, but notwithstanding we collected every specimen in sight which was worth having and nearly all of the material was carefully examined by Dr. Genth, not a trace of either of these minerals was discovered. It is to us one of the most interesting of all facts in mineralogy that nature often prefers producing *new* species of very different forms to duplicating the *old* species. Fiedlerite and Penfieldite have exactly the same constituents—lead chloride and lead oxide—as Matlockite and Mendipite, but in varying proportions, and while the older minerals are both tetragonal, Fiedlerite is monoclinic and Penfieldite hexagonal. Laurionite also contains lead chloride and oxide, but it is hydrated and its crystals are orthorhombic. There is thus a group of lead oxy-chlor-

ides most interesting both from the standpoint of the chemist and of the crystallographer, and three out of the five are found in the ancient slags of Laurium. Whatever interest these lead minerals possess to the chemist and crystallographer, we do not hesitate to say that nine out of ten collectors will be glad to turn from them to the large and varied assortment of zinc minerals found in the underground workings of the French Mining Company of Laurium. This company has been in operation since 1875, declaring 7% dividends on a capital of over \$4,000,000. It owns the entire central area of Laurium (54,000 acres) and employs some 2500 men. Its main business is the mining of rich zinc ores, which it calcines and then ships to Belgium, owing to the great cost of making spelter here. This company has entered into the labors of its ancient predecessors; it had only to find their shafts and clear out their galleries to have a mine in full swing. Great masses of ore mined twenty to twenty-four centuries ago (the interior ecbolades) lay ready to be carried to the surface, and the old galleries lighted the way to new discoveries.

The Camaresa Mine

The Camaresa Mine has now a depth of some 600 feet, and its galleries aggregate some 50 miles in length. It was early one November morning when we jogged out in a typical, two-wheeled, Grecian carriage, to the Camaresa Mine, some six miles from the little hotel in the town of Laurium. So long as the little horse traveled at exactly the right pace, no vehicle could be more comfortable, but unfortunately it was rarely that the proper pace was maintained for more than a minute or two at a time and then—well it seemed as though our skeletons would be jolted apart. In due time, however, we drew rein at the office of the French Co., presented our letters of introduction, and were provided with an escort to show us through the mines. The low and tortuous old workings were eagerly shown to us by our Grecian guides, fragments of ancient vessels and tools were exhibited, and some particularly narrow passages through the work-

ings were pointed out and one of the miners crouched down with a basket on his back to make even more realistic the hardships to which the slaves were formerly subjected. All of this was interesting, but we saw not a single specimen in the mine worth carrying away. In the office of the Company there was scarcely anything of value and after working a little on the dumps we jogged back to Laurium without a single good specimen to show for our morning's visit. It is from another mine really a little outside of the Laurium district proper that most of the fine specimens come.

There is almost as much ignorance of minerals at Laurium as there is in our American mines. This means that beauty and oddity are the factors which determine values; a showy Smithsonite will cost more than a good Serpierite, while we could find no one at Laurium who knew anything at all about the slag minerals. Before leaving Laurium we had purchased many miscellaneous specimens and the entire collection of one of the leading engineers which it had taken ten years to gather and which embraced many more beautiful specimens than had heretofore been seen in the U. S. of Smithsonite, Adamite, Serpierite and Aurichalcite. Having packed up five huge casks of specimens we returned to Athens and took the first steamer for Sicily.

A Visit to Sicily

It was a two days' sail from Piraeus, mostly westward, and as we neared the Sicilian coast early one Sunday morning in the latter part of November, the lofty summit of Mt. Etna loomed over 11,000 feet above us. It was a grand and beautiful view, and when that same evening we were rambling about Aci Reale, one of the smaller Sicilian cities, our mineralogical eye was greatly interested to note that the streets were paved and the houses built with the lava from Mt. Etna. The railroad also runs over and through great lava fields, and it is a sight well worth seeing. Taking a small boat we were rowed a short distance along the shore to see a very curious series of basaltic columns — a miniature of the Giant's Causeway. The slopes of Mt. Etna are

covered with lemon orchards and vineyards while cacti are as plentiful as blades of grass with us. The lemons were bringing about a quarter of a cent apiece at the time of our visit and that was considered a high price, as they frequently sell for as little as five cents per hundred. In the Mediterranean, scarcely more than a stone's throw from the land, there is a little cluster of rocks, the whole of them probably no larger than the Museum Building on the Eastern Parkway. These rocks are the Cyclopean Islands, famous for many years as a locality for Zeolites.

Our week's stay in Sicily yielded us a wonderfully fine lot of Sulphurs, Melanophlogites, Aragonites, Celestites, and Hauerites. It space permitted we would like to recall some of our experiences in the Island and tell something of its great sulphur mines, but we have many other even more interesting localities yet to visit and we must push on.

A Visit to Elba

The Island of Elba was our next important stopping place. We left Rome by rail early one morning, skirted the shores of the ever beautiful Mediterranean, and about noon alighted at the village of Campiglia, where we hired a carriage and drove 7 or 8 miles to the curious little town of Piombino. A boat ride of 8 or 10 miles brought us to Portoferajo, the chief town in Elba, interesting only because it was to this place that Napoleon I was banished, and his house is up on one of the hills in plain view of the hotel. The tourmaline locality at San Ilaria was first visited. It lies twelve miles west of Portoferajo and the drive was most enjoyable. The road leads up and down the mountains and commands magnificent views of the blue waters of the sea first on one side of the island, then on the other. There never was a more unpromising looking place to find minerals than San Ilaria, and all we secured were bought from parties who had saved them up for years. None of the splendid Rubellites have been found for a long time and they are constantly advancing in value. The Tourmalines are found in small pockets scattered over the

sides of the huge granite mountains and a vast amount of work is often done before anything at all is discovered. The second day of our stay in Elba was devoted to a visit to Rio Marina, the town where the famous iron mines are located. It is 17 miles to the East of Portoferajo and the drive was a very delightful one, indeed if there were decent hotels in Elba, it would be difficult to find a more pleasant way of spending a few weeks than driving among its charming mountains; but the hotels are in some respects the poorest at which we have ever stopped, their only redeeming feature being that they know how to cook the national dish, macaroni, in every conceivable manner, and macaroni is the traveler's mainstay when journeying in out-of-the-way parts of Italy. It would not be an exaggeration to say that while we were on the Island of Elba, we frequently had three meals a day of macaroni, and we shall never forget how good it repeatedly tasted when we would return to the hotel at nine or ten o'clock at night after a cold, moonlight drive back from the iron mines. Next to his love for macaroni, probably the most prominent trait of character in the Italian — which we were compelled to *copy* for the time being — is his love of bargaining. This even possesses hotel proprietors and the traveler is quite sure to be overcharged if he does not make a bargain with the proprietor when he engages a room. When it comes to buying minerals bargaining is, of course, even more essential. Our experiences were often amusing. Nearly all of the many Hematites and Pyrites which we secured at Rio were bought in little lots from miners and storekeepers around the village. We had been in Italy long enough by this time to have picked up a little of the language and could consequently understand some of the side talk of the parties with whom we negotiated, and it was certainly amusing to hear them exulting over the way in which they expected to stick the Americanos. That they met with but little success is probably best evidenced by a few instances of the initial and final prices.

One lot for which we were asked 200

francs, we paid 70; Another lot for which we were asked 100 francs, we paid 25; Another lot for which we were asked 30 francs, we paid 12 while in still another instance 20 francs was asked for one specimen and the deal was finally closed by paying five francs for four. Probably our most amusing experience in Italy was in Sicily. We went to see a large collection of Sicilian minerals; it contained many big, ugly, bruised celestites and sulphurs, and we saw at a glance that we would not care for it, even if but a very moderate price were asked for it. The owner's whole family, however, seemed determined to sell it and not less than a dozen of them, men, women, and children, assisted in the undertaking; before one specimen could be examined another would be thrust under our noses, and while they did not go so far as to lock the door or thrust their hands into our pockets, they robbed us of two hours time in their vain endeavor to sell us the collection. Possibly it is needless to say that we had a purpose in remaining so long, — it was to secure at a fair price the one splendid large group of sulphur crystals which was the only really choice specimen in the whole collection. It was with a sigh of relief that, after this long siege, we finally succeeded in making a satisfactory trade.

Carrara Marble Quarries

It was well along in December when we reached Carrara, our next stopping-place in Italy. We had not expected to find Carrara a place of interest, except for the beautiful crystals of quartz in white marble; but it proved to be full of interest. The mountains which hem in the town of some 30,000 inhabitants on nearly every side are among the highest in Italy and are visible for a long distance. The loftiest summits which are only a short distance from the town, are about 10,000 feet high, and at this season of the year were covered with snow. These huge mountains are in large part solid, white marble of the very best quality. The quarries are so large that you would scarcely believe us if we gave you figures, or rather let us say the dumps of debris, for while the amount of mar-

ble which has been taken away is so very great, the mountains are so vast that the impression made upon them by the loss of material is scarcely noticeable, but the piles of fragments resulting from the crude methods of quarrying are possibly 1000 feet high in some places. When ten or fifteen miles away, these dumps look exactly like huge snow banks on the mountain side and tourists traveling by Carrara generally take them for snow. We have seen a good many large dumps in mining regions, but we never before saw any that were comparable to these veritable mountains of marble fragments which abound near Carrara. At the breakfast table at the hotel, we had occasion to send a telegram and were asking the English speaking waiter to tell us whether the Italian of the telegram was correct, when a young man who had just entered the room came to us and offered his aid, telling us that he was from London and had assisted the proprietor of the hotel in answering our previous letter of inquiry as to the quarries, etc. He very kindly offered to guide us around the quarries and help us in our search for specimens, and we were only too glad to accept. We found him to be one of a firm of English marble dealers and he stays in Carrara for the purpose of buying up desirable blocks of marble from the quarries, and he is, therefore, thoroughly familiar with all of them. We spent some four hours in our tour and during this time we learned much of interest about the region. There are at least 400 marble quarries on the side of the mountains next to Carrara and as many more on the other side. At least 6000 men are employed in them, and marble to the value of 3,000,000 francs is annually exported in the rough blocks, besides *enormous* quantities of sawed slabs, sculptures, etc., etc. Blocks weighing as much as 40 tons are gotten out and 20 ton blocks are actually shipped and yet the methods employed are *exceedingly* crude. All the marble is hauled on ponderous wooden wagons with wheels about a foot thick and drawn by oxen — sometimes 20 or more of them to one block. A visit to the quarries without a guide

would be exceedingly hazardous, as they blast whenever they please on all sides, and unless one knows where the "mines" (as they call the powder loaded holes) are and where places of refuge are to be found, he stands a good chance of being hit by the flying fragments, which are hurled much farther than in similar blasting in our country on account of the extravagantly large charges of powder used. Our companion told us, though we must say we doubt the truth of the statement, that a fragment of marble had been known to be hurled clear across the summit of the mountain range and kill a man on the other side. Be that as it may, we soon found by the caution exercised by our guide as well as the quarrymen that whenever the horn sounded as a signal for a coming blast, it was well to get behind a big block of marble. But the greatest danger around the Carrara quarries is from the *avalanches* of marble which occur every few minutes on all sides. The marble blocks are shaped upright on the dumps and every once in a while one of them starts down the dump, carrying with it a torrent of smaller pieces and crashes down to the bottom of the valley. If one happens to be below he stands a good chance of being killed — as many are in the course of a year. The road from the town to the quarries presents a number of fine mountain views, not the least beautiful of which is one obtained by following the railroad track through a tunnel half a mile or more long, which, by the way, is interesting in that the entire cut is through solid marble. On emerging from the tunnel at a high altitude, a beautiful panorama of the distant Mediterranean Sea and the intervening valleys in the foreground, and the snow-covered summits and the quarries in the back-ground is suddenly revealed. It would doubtless interest you also for us to tell of the peculiar methods of quarrying which the Romans employed as shown in the still well-preserved old workings, of the hundreds of establishments in and near Carrara where the marble is worked up, of the beautiful mountain streams which supply the necessary water power, of the methods

of quarrying, and of loading the huge blocks on the carts, and of many other points which made our stay in Carrara one of much interest. The quartz crystals are quite rare, but a fairly good collection was secured and then we hurried on to Baveno.

Baveno Granite Quarries

This little town is one of the most charmingly situated in all Italy — on the lovely Lake Maggiore, surrounded by precipitous and frowning mountains with the great snow-covered peaks of the Italian Alps in the back-ground. Our visit was, of course, for the purpose of securing specimens of the typical twins of Orthoclase found here, and also with a faint hope that some of the rare, highly modified Fluors might also come our way. These specimens are found in the Granite quarries near the town. These, though far less extensive than the marble quarries at Carrara, are *enormously* large. It was not until we got very close that we could see the men at work, for there were so many huge blocks of granite all over the side of the mountain, that we had greatly underestimated their size, and when we got near and found that instead of their being stones of a foot in diameter, they were blocks six feet or more in size, then we were able to discern the little men among them. There was one *enormous* block, probably not less than 40 feet in each direction, and, if so, it must weigh about 6000 tons. On our last visit to Baveno, a few months ago, we again saw this huge block, but it had been broken in half and the afternoon we visited the quarry men were at work making the final preparations to again split it. A row of holes had been drilled and on the morrow these were to be plugged and tapped and the great mass would be rent in twain. We were almost tempted to stay a day longer in order to see this done, and we were enough interested in the operation to leave an addressed postal card with the hotel proprietor so that he could inform us whether the undertaking was carried out successfully, and we subsequently heard from him that it was. The top of the block was reached by a ladder and two

men were to do the pounding on the plugs, and when the block appeared ready to crack one of them was to hurriedly escape down the ladder, while the other was to remain until the block actually commenced to part, when he too was, if possible, to escape by the ladder. We would not have taken the man's place for any amount of money, yet this poor fellow took his life into his hands without receiving any compensation other than his meager dai'y wages.

Possibly it may be as well for us to end here the *narrative* of our European trip in 1891 and merely allude briefly and in a fragmentary way to a few other European localities which we have visited from time to time.

Freiberg, Germany

Freiberg in Saxony is one of the oldest and best known mining towns in Germany. Its most celebrated mine, the Himmelfurst, is one of the richest silver mines in Europe. It would be safe to say that more mineral species are found in the Freiberg mines than at any other place in Germany, and doubtless there are more rare silver minerals found there than anywhere else in the world. The mines in the vicinity of Freiberg are owned by the Kingdom of Saxony, and all the profits consequently accrue to the State. We will not attempt any description of the beautiful and historic town, whose old walls and moats are still well preserved, whose mining academy is the pride of the German Empire if not of the world, and whose great mines have been profitably operated for centuries. At a mine at Halsbrucke very near to Freiberg, there is a chimney 455 feet high, half as high again as the St. Paul building. No mineralogist should omit a visit to Freiberg, nor to the great state collection of minerals in the Mining Academy, where all the finest specimens found in the Freiberg mines are to be seen.

Munich, Germany

Munich is not a mineral locality, but a trip to Europe would be incomplete which did not include a visit to the wonderful collection of loose crystals which forms a part of the University collection of minerals. The variety of natural cry-

stals here is almost beyond belief and their uniform excellence is amazing. Another great collection of loose crystals is that of Dr. Seligmann whose beautiful home on the Rhine always has the latch-string out to mineralogists, and whose collection contains only one uncryallized specimen. Probably a larger number of specimens of scientific interest can be seen in these two collections than in any others in the whole of Europe, unless we except, as probably we should, the great government collections in London, Paris, Vienna and Budapest. It would, of course, be impossible for us in a few minutes to do justice to these and the many other fine collections abroad.

St. Gothard, Switzerland

There are also many other *localities*, which ought to claim our attention. The great St. Gothard region in Switzerland, where among other things are found the splendid Hematites of the peculiarly attractive and rare "Iron Rose" variety, the remarkably fine pink modified octahedrons of Fluorite, the choice sphenes and smoky quartz crystals. None of the Swiss minerals come from mines or quarries — all of them are from localities worked exclusively for their specimens. It seems strange but it is true, that the great Alps seem to contain none of the more valuable metals, such as gold, silver, copper and lead and therefore there are no mines. Mineral collecting in Switzerland is consequently difficult and expensive and prices are generally high. The magnificence of the scenery, however, largely offsets the difficulties to the one who secures the specimens.

English Minerals

The majority of the minerals from England come either from the tin mines in the southwest corner of England or from the iron mines in the northwest part of the country. Cornish minerals as a rule are not very showy, but there is an almost endless number of very rare and interesting species found there. In the Cumberland district in the north of England, the number of distinct species is comparatively limited, but the variety of forms, especially of Calcites, is almost endless.

Rocks "Dated" by Uranium

Uranium — source of the destructive powers of the atomic bomb — is of interest not only to physicists, but also to geologists who, for years, have used it in the computation of the age of the earth, and the age of meteorites which have reached the earth from other parts of the solar system, it was pointed out by members of the staff of the Chicago Natural History Museum.

The isotopes — word becoming familiar to newspaper readers since disclosures about the atomic bomb — of uranium, which play such an important role in the new bomb's construction, are the very same atoms by which geologists have been able to establish that the age of the earth is approximately two billion years, says Dr. Paul O. McGrew, acting chief curator of geology at the museum. Likewise, they have been used to determine that the rock material composing meteorites reaching the earth from outside is of approximately the same age, and thus that the entire solar system probably is of the same age as the earth.

The museum has on exhibition the world's largest collection of meteorites, fragments of some of which were lent to scientists of the Massachusetts Institute of Technology several years ago for the experiments and calculations which led to the present accepted estimates of the age of the earth. Also exhibited are a number of specimens of uranium ore.

Briefly the age of rocks and meteorites is determined in the following way: Dr. McGrew states: Uranium and certain other radioactive elements are present in many rocks of the earth's crust. These elements disintegrate at a constant known rate. A product of this disintegration is lead. By complex measurements of the amount of the radioactive element in a mineral and the amount of the products of its decomposition, the time since the formation of the original mineral can be determined. The oldest rocks so far "dated" by this means are from Russia, and are 1,850,000,00 years old. From South Dakota are some that are 1,500,000,000 years old.

ANCIENT RIGHTS

By GEO. M. PARKER

Member R. & M. A.

Centuries ago the Chinese promulgated a Bill of Human Rights. Among these rights was the right of a man to his job. This right has become a firm part of Chinese and Asiatic philosophy, so much so that an invention that would save or displace human power was frowned upon and banned. That philosophy has kept millions of Chinese poverty stricken and virtual slaves to custom.

Times change, even in China. The camel train watches the airplane and motor truck speed by, while sweating coolies see road building machinery outdo their best efforts.

Lapidary machines, after standing still for centuries, are undergoing great changes. Many so-called trade secrets have been de-bunked, such as polishing jade, dying agate, facetting gems, carving labradorite and pagodite.

Many of our soldiers and sailors have come back. Millions more will come, some of them healthy and happy while others are wounded, body and spirit. We owe these men a lot. We can only pay by giving them jobs. That is their right.

Sadly enough those who have given an arm, a leg, or an ear or eye, cannot always go back to their old jobs. They must find new jobs, new places, new professions and trades.

At Birmingham General Hospital in Van Nuys, Calif., and at the Naval Hospital at Corona, Calif., veterans are learning to cut and polish gems. The de luxe lapidary machines at both hospitals were presented by business men and clubs, and dealers as well as mineral societies supplied accessories and cutting material. This example could well be followed by clubs and societies in other parts of the country so that more veterans could learn to be self-supporting lapidarists.

For generations America has been the great market for gems, jewels and objects de 'art, mainly coming from Asia and Europe. There is no reason why we should continue to support Asiatic or European artisans while our own people

search in vain for jobs that they can do. Gems and jewelry are always in demand and even the amateur lapidarist finds his products admired and saleable.

The finest lapidary equipment costs less than a dentist's outfit or an optician's set or even a good piano. Many professions require a college course and years of training but the lapidist with a good set can, in a short time, turn out acceptable pieces. Such publications as *Daily World*, the *Los Angeles Daily News*, *Mechanix Illustrated*, mineralogical magazines and many local newspapers have run feature articles on the lapidary art and, for the first time in America, the art is being taken seriously by Americans.

Given a good lapidary set and some basic instructions, an American artisan can outdo any Asiatic or European. He finds his creations beautiful and in demand. He sets his own hours, makes his own prices and enjoys every moment of his work.

Gem cutters do well even in depression. Depression will follow prosperity and the hobbyist in the lapidary field would do well to look ahead and perfect himself in his art. Get a good machine. Don't try to build your own set. Get a factory job, one that has stood up under severe test!

Januzzi Opens Museum

Ronald Januzzi, 16 year old high school student, son of Mr. and Mrs. Anthony Januzzi, of 83 Elm Street, Danbury, Conn., opened his mineral museum to the public on Sunday, July 22, 1945. The museum is located at the rear of the Januzzi home. Many fine minerals, including ores, crystals, and fluorescents, are on display and are attracting considerable attention.

Ronald, who is a member of the R. & M. A., announces that the museum is open on Tuesday and Friday evenings, from 7 to 9. We are very sure he would appreciate donations of specimens for the museum.

COAL OF MANY COLORS

By T. ORCHARD LISLE

"A piece of coal for MY collection? "No thanks"! Possibly this would be the ready remarks of many a novice rock-hound if anyone suggested a sample. But coal can be a beautiful and worthy addition to the finest of collections. Ever heard of jet? This lovely black material is all too scarce among mineralogists who cut and polish. It is a very hard species of coal that has been found in a few places in the United States. The most famous location is Whitby on the northeast coast of England. It really is a black variety of brown lignite that changed very slowly from coniferous wood, and has a hardness of about four.

Our story, however, is not about jet for it deals with a bituminous coal of many colors which will grace any collector's cabinet. And, there is lots of it in the State of Pennsylvania. Being iridescent, it is known as Peacock coal, although Peacock coal is usually limited to anthracite. Many years ago a ship loaded with Peacock coal sank off the coast of New England.

When next you drive along scenic route 30 towards Pittsburgh, Pa., and are nearing Ligonier, look out for a small quarry and a brick plant on the right hand side of the road. The quarry is being worked for silica rock used in the brick making. Under a magnifying glass the silica rock is composed of small rounded crystals bonded together. Interesting geologically, but not attractive in appearance. The

writer found no other minerals in the quarry.

But behind the quarry now being worked there is an abandoned quarry. Wandering around the same recently the writer noticed some large lumps of weathered coal lying about. Tapping one idly he noticed that it was full of beautiful colors and very fragile. The Editor of *Rocks and Minerals* has a specimen, so may want to add his comments to this article.

Further inspection showed that in the wall of the quarry there is a vein of this iridescent coal about one foot in thickness and several hundred feet long.

Not being dressed for the job, not having the time, the writer did not dig back into the seam for harder and less weathered pieces; but would recommend that this be done as this undoubtably will result in harder samples.

If you take the Penn State highway to Pittsburgh you will miss this beautiful coal of many colors, unless you leave this fine road at Somerset and proceed north to route 30.

Editor's Note: The specimen sent us is truly beautiful even if it is rather soft and fragile. Digging in the vein would no doubt uncover harder and perhaps more beautiful material. This is the first time we ever saw iridescent bituminous coal.

Precious Serpentine in New Jersey

The most noted precious serpentine locality in New Jersey is near Montville in the northeastern part of Morris County. Here a beautiful, deep-green and oil-yellow, often translucent, serpentine, occurs in an old abandoned limestone quarry located on the eastern slope of Turkey Hill, about 2 miles north of Montville R. R. station. The locality is said to be so hard to find that collectors are avoiding it.

Montville, a small village of about 2,000, is in the northern part of the state.

Dinosaur Footprints in Pennsylvania

Dinosaur footprints in the sandstone from the Connecticut Valley of New England are well known and have attracted wide attention. A locality which may not be well known but which produces some very interesting specimens of dinosaur footprints in Triassic sandstone is the Trostle quarry, 3 miles east of York Springs, N. E. Adams County; another interesting occurrence, also in sandstone, is near Yocumtown, N. York County. Both localities are in southeastern Pennsylvania.

CUBAN NICKEL PROJECT SUPPLIES WAR INDUSTRY

A \$33,500,000 nickel ore center whipped together in record time in a remote sector of Northeastern Cuba is making United States airplane armament and ordnance engineers happy as they turn the full force of their technical skill on the war with the Japs.

The plant is known as Nicaro Nickel. It is situated on Lengua de Pajara (Bird Tongue) peninsula. Two years ago it was still a blue-print in the drafting rooms of the Freeport Sulphur Company. There engineers had discovered a secret way to make the low-grade Cuban ore yield better than appreciable amounts of urgently needed nickel.

This year the Nicaro Company is producing 27,500,000 pounds of nickel for the United States. And Cuba has a new industry boasting some of the largest and most modern plant equipment in the world — an industry giving employment to 1,800 Cubans.

Metallurgists have known for many years that the hills back of the Nicaro community could produce nickel ore. But the ore was low-grade and mining was impractical. However, as the United States nickel problem became acute, Freeport Company engineers perfected their process and developed ways of obtaining the valuable metal in paving quantities from ore assessed at as little as 1.5 per cent.

From there on out the Nicaro establishment mushroomed. The Defense Plant Corporation contracted with Nicaro Nickel, subsidiary of Freeport Sulphur, to build the plant. The shortage of shipping was equalled as a stumbling block only by the then rampant U-boat campaign in the Caribbean. Furthermore, building materials were short.

But the Nicaro company, spurred by the Defense Plant Corporation and the Metals Reserve Company, was NOT to be blocked.

Export construction men combed the United States for steel, steel rails, and other equipment. An abandoned cement plant was found in New Jersey, the steel skeleton of an unfinished hotel in In-

diana. A sea-going vessel was bought up in Florida for transportation. And the Navy loaned Nicaro Nickel a flying boat to hasten transportation of equipment and men.

Most of the construction material was shipped through Florida ports with or without convoy. The Nicaro plant gained form rapidly with a total of 8,000 workers laying out railroads from plant to ore fields, setting up the plant and building a community for workers.

Now the Nicaro plant is the largest industrial unit in Cuba. The ore-reducing building, which rises ten stories in height, has the world's largest furnaces. Likewise, its four giant rotary kilns for drying the ore are rated the biggest in the world.

Nicaro treats 3,600 tons of ore a day, all of the product is earmarked for the Metals Reserve Company. The finished product finds its immediate way into the great defense plants where it is irreplaceable as an alloy for the hardening of steel and other metals used in armament ordnance. The metal is also an ingredient for jet-propulsion airplanes now coming to the fore. Motors of these planes require a terrifically high heat resistant metal.

Running smoothly now, the Nicaro plant assures the United States of a substantial source of vitally-needed nickel.

Stibnite in South Africa

In the Murchison Range, in the Zoutpansberg District of northeastern Transvaal, is the antimony belt of South Africa. This belt, which has been traced for 30 miles, consists of quartz, quartzites, and slates. Stibnite, the chief ore of antimony, and its oxidation products, stibiconite and senarmontite, associated with quartz, occur as veins varying from a few inches up to 20 feet in width, and dipping at a steep angle, 80° N. As the antimony ores carry considerable gold and silver, the deposits are worked mainly for the precious metals. The United Jack Gold Mine is one of the largest producers of antimony in South Africa; nice specimens of stibnite have been found in this mine.

GINGKO PETRIFIED FOREST STATE PARK OF WASHINGTON

By CHAS. SIMPSON

Quincy, Wash.

The Gingko Petrified Forest State Park is located on State Highway No. 7, in southeast Kittitas County in south-central Washington. It is just west of the Columbia River bridge at Vantage, which location is east of the Cascade Mountains, in a rather desert country with plenty of sage brush and basalt rock and its full share of sage ticks.

The Park area covers nearly 7,000 acres of rough land and the petrified wood has been uncovered by erosion in a good many places in that area, especially in draws and gullies. The term "Gingko Forest Area" has been applied to a lot of country surrounding the Park in every direction where lots of petrified wood have been found, especially on Saddle Mt., about 20 miles southeast from the Park.

The lava flows that covered the logs is supposed to have occurred about 15,000,000 years ago.

On top of a high bluff, just west of the Vantage bridge and about $\frac{1}{2}$ mile south of the highway, is the Park Museum which contains a fine display of polished petrified wood from the Park area, some of them about two feet across. At this location is a splendid view of the Columbia River gorge, far below. Ten miles south you can see the gorge where the Columbia River cuts through the Saddle Mountains.

On the highway, about 3 miles west of the museum, is the best location to see the petrified logs. At this locality 22 logs can be seen along a trail that is not too long.

In a small display room in the Caretaker's house, at the locality, there is a nice display of polished petrified wood. There is also a Caretaker's house at the museum site.

It is my belief that the petrified wood of the Park shows the original wood structure more plainly than from any other locality in the United States, and most



Mr. Simpson sitting on a spruce log at the Park and holding a polished elm section (petrified wood) from Saddle Mt.

of the logs are not hard to identify by an expert.

I was Caretaker of the Park for six years and one month (resigned July 1st, 1943). Mr. Burt Chandler is Caretaker now.

In normal times about 75,000 people a year register at the Park.

CHARLES RIDGELY ALLISON

July 6, 1866 — June 6, 1945

Charles Ridgely Allison died on June 6, 1945, at his home at 207 Wells St., Peekskill, N. Y., after a short period of failing health. He was born on July 6, 1866, in Ridgely, Maryland, the fourth son of a family of five sons and two daughters of Rev. Robert Coates Allison and Ellen Eliza Smith. Two sons died at an early age and the eldest, Henry Milton Allison, died in 1938; two sisters passed away in young womanhood.

The founder of the American branch of the Allison family migrated from Scotland in the 18th century with his wife and five sons and settled in Pennsylvania where he received from William Penn a grant of land in what is now Center County. Three sons joined the American Army and fought till the close of the Revolution; Mathew Allison, Mr. C. R. Allison's grandfather, was one of them. His father, Robert Coates Allison, (1823-1886) graduated from Amherst college in 1853 and Union Theo-

logical Seminary in 1857. He was State Superintendent of Education for Pennsylvania and the first Professor of Literature in Pennsylvania State College. Later he became a Presbyterian Minister, officiating in several churches during his lifetime. From him his children were early instructed in natural history and it was thus that Charles developed his love for astronomy and mineralogy.

His mother's family came from England to Providence, R. I., about 1630 and with the Dickinsons (his maternal grandmother's family) scattered throughout New England leaving institutions of learning, hospitals and libraries named for them.

Mr. C. R. Allison's interest in mineralogy began at an early age and lasted to the very day of his death. He was a most enthusiastic collector who made many trips to localities in the search for specimens. He, too, was a graduate of Amherst and for a time taught school in



CHARLES RIDGELY ALLISON

Massachusetts. In 1887 he settled in New York City where he worked his way up as bookkeeper, salesman, and research engineer to a good position with the Standard Oil Cloth Company (now the Standard Coated Products Co.) which he held through business changes until his recent retirement. While a salesman he traveled all over the country, from one coast to the other, and this gave him an opportunity to visit many mines and mineral localities where some good specimens were collected. Unfortunately, due to constant moving from place to place, in those days, he was in no position to have a mineral collection and so only a few specimens were collected to remain as treasured though sad mementoes of trips made to famous localities from which only a very few specimens were brought back.

In 1915 Mr. Allison settled in Peekskill where he made his home. About 1935, with two attractive granddaughters living with him, he began to interest them in minerals while his own interest was kindled to a high pitch and he began to collect in earnest so that at the time of his death he had a nice collection. To the good people of Peekskill, however, he was the great astronomer (perhaps the most noted this little city ever had) and he was widely consulted on astronomical

matters. It would have been considered most unusual if a week was to go by without Mr. Allison's telescope and a group around it were not seen. The Editor of *Rocks and Minerals* attended a number of meetings on astronomy that were held in Mr. Allison's home and enjoyed them very much because two-thirds of each meeting seemed to be centered on mineralogy and everyone present enjoyed it, too. Mr. Allison was also an ardent fisherman and it has been said that no one was more proficient in the art of fly and bait casting than he.

Mr. Allison leaves one son, Elmer Roy Allison, a daughter-in-law, Mrs. Sarah (Harold S.) Allison, and two granddaughters, Mrs. Anne R. Hof and Mrs. Grace C. Alley (whose husbands Richard Hof and Edward Alley are with the U. S. Army in Europe). He also leaves his youngest brother, Edward J. Allison, of Philadelphia, Penn., and several nieces and nephews.

A kindly, friendly, and most interesting personality, his passing leaves a void in the hearts of a host of friends and relatives.

His mineral collection was left to his granddaughters.

Peter Zodac

Finest Tennantites Found in Switzerland

The most beautiful specimens of tennantite known are the small brilliant crystals occurring in the white dolomite of the Binnenthal in Switzerland. Tennantite is a sulf-arsenide of copper, steel-gray to iron black in color. When first discovered it was thought that it was a new species and the name binnite (after the locality) was given it — later examination showed it to be tennantite.

The mineral occurs in the Binnenthal associated with a number of metallic minerals such as orpiment, pyrite, realgar, sphalerite, etc.

Binnenthal is a valley in the N. E. part of Canton Valais, of southern Switzerland.

Native Copper in New Jersey

The most noted locality for native copper in New Jersey is the old abandoned copper mine near Somerville in the central part of Somerset County. Here the native copper is found as irregular plates and masses in a hard, tough shale (in basalt which is the prevailing rock of the area). Calcite, chrysocolla, and cuprite are the common associates of the native copper.

For many years a large rounded mass of shale containing small plates of native copper was present on the dump from which collectors would chip away specimens — perhaps this mass is still there.

Somerville, a village of about 8,000, is about midway between the northern and central part of the state.

"ME AND PA." TWO OLD ROCKHOUNDS

Dear Editor:

Every time we go to our Rocks and Minerals Club, Pa always takes along some specimen he is more or less proud of and usually has his pockets bulging with such. The last time there he was showing a very pretty piece of black obsidian with irregular, gray wavy lines across its face. As I never remembered seeing that kind of a specimen before, I slightly suspected Pa had purchased it from someone and was implicating he had been the discoverer. Though I had never discovered him in a downright misrepresentation, I have often believed Pa sometimes stretched a point in order to throw flowers toward his own bailiwick.

On this occasion I was determined to corner him with the demand of an explanation. Before confronting him with that piece of obsidian, after we got home I looked up the Location Number in our 'Trip record Book' and found 77a and then read, "Panum Crater" south side of Mono Lake. Turn East on Benton road off Hiway 395, within sight of Mono Lake, arriving from the South. Mono County, Calif." This I could not believe as I well remember that trip and I was sure such a piece of rock was never found there.

I braved the results that were sure to follow any mention of that outing (truthfully I did not expect it to be mentioned), but as I casually remarked about the beauty of the slab and, as demurely, I also asked where it came from. After Pa had slid his specks down over the hump and looked across the room from where he was studying "Getting Acquainted With Minerals", I knew I was in for it because a broad grin spread across his wicked face as he laid aside his glasses. I could plainly see he was repressing a desire to laugh outright but with a modulated voice he started.

"Now, Honey", then I was sure I had been mistaken about that piece of obsidian and it had been picked up at Panum Crater for when he started in with that 'now honey' stuff I knew he

had something special to throw at me, and, at me it came as he continued, "you don't mean to tell me you have forgotten that trip when I warned you to put in plenty of blankets and to throw in the sleeping pad extra and you deliberately put in only half enough so that we would not camp out. But when we arrived at Panum Crater it was too late to gather specimens and we *did* camp out. Don't you remember that all night long you kept cuddling closer to me because the coyotes were calling to their mates. And when that Screech owl spoke to us you awakened me with a shudder and asked, breathlessly, 'what was that? Of course it is quite chilly at 8,000 ft. elevation and I may have shivered a little but surely you have not forgotten those little squeals you startled me with when that pack rat rattled a tin can close to where I was sleeping."

"Yes, Pa," I cut in, "it's no use to go into all the details of that night just to answer my question about that piece of rock that I never saw before."

"But, darling!" he cooed, "It was cold that night and I shivered too but that does not make it untrue that that piece of obsidian was numbered correctly. The reason you did not recognize it was because of the way I happened to cut it. Look at it from the side and you will note those flow lines are about $\frac{1}{4}$ inch apart and are not even but in making a flat place for polishing I happened to cut about 15 degrees from parallel with those flow lines and the result you can see was astounding for it now looks as if it were impregnated with streamers of Maltese Lace. Although those lines did undercut a little you must admit it is beautiful. I wish I had brot more of it home as there was plenty of it there."

Again I had been mistaken and had to listen to a recital of my first night camping out.

Your truly,

Me, of the Two old Rockhounds.

Angmagsalik, Greenland

W. Scott Lewis, of Hollywood, Calif., has sent to the Editor of *Rocks and Minerals*, a number of specimens which had been collected in Greenland by his brother-in-law, S/Sgt. Basil Andrews, a meteorologist with the U. S. Air Force. The specimens come from Angmagsalik, a settlement on the east coast of Greenland and close to the Arctic Circle — a region that seems rather unknown. Sgt. Andrews reports that the mountains in that section consist entirely of ancient sediments that had been highly metamorphosed by granitic intrusions. Crude garnet crystals are abundant and there are some outcroppings of magnetite. However the geology could not be studied easily at the time of Sgt. Andrews visit as nearly everything was covered with snow and ice.

Among the specimens sent in were:

Amphibole (Hornblende): Black, crystalline mass associated with biotite, garnet, and quartz; also with orthoclase.

Biotite: Bronzy black masses and flakes associated with hornblende, garnet and smoky quartz.

Garnet (Almandite): Dark red masses associated with hornblende, biotite and smoky quartz.

Magnetite: Black mass showing parting and associated with biotite and smoky quartz.

Orthoclase: Reddish flesh-colored crystalline mass with hornblende.

Quartz (Smoky): Small masses associated with hornblende, biotite and garnet; also with magnetite.

Vanadinite Occurrence in South Africa

One of the important localities for nice crystallized vanadinite in South Africa, is the old Doornhoek lead mine, in the Marico district of western Transvaal. The mineral lines vugs and cavities in the ore veins; one huge cavity, 15 feet long, yielded one ton of vanadinite.

The vanadinite in the mine is associated with cerussite, pyromorphite, minium, and massicot.

Interesting Fluorite Found in Kentucky

During the past year, many new finds have been made in the fluorite mines of Western Kentucky, reports Colonel Fain White King, of Wickliffe, Ky. These finds may be attributed to the fact that more mines, many new ones, have been opened up due to the war use for fluorite.

One of the new finds is a dark purple fluorite, in cubic crystal masses, encrusted with pale smoky quartz crystals which are up to an inch in length. Most of the quartz crystals project out of the fluorite but those which lie on their sides are doubly terminated. Minute doubly terminated rock crystals are also present, imbedded in the fluorite. Col and Mrs. King secured all of this find, over a hundred specimens.

Small but nice brownish dendrites of limonite appear on the surfaces of some of the larger smoky quartz crystals.

These minerals were found in a small fluorite mine, about 5 miles northwest of Salem, in N. E. Livingston County.

Aleutian Volcano Erupts

According to an item in the August 10, 1945, *Alaska Weekly*, the huge Tulik crater on Umnak Island, Alaska, began to erupt recently which caused much apprehension among nearby residents and especially the army personnel on the island. Hot volcanic ashes of 1,000° C. temperature shot 1,000 feet in the air but did little damage. Fortunately, too, the crater has quieted down and it is now believed that danger from a violent eruption is past.

Umnak, one of the larger islands of the Fox group, the most easternmost of the Aleutian Islands (adjacent to the Alaska Peninsula), is about 66 miles long and 10 wide. It is a volcanic island whose highest point is Mt. Vsevidoff (in the southern part), is 8,800 feet high. Petrified wood and lignite are known to occur on the island also many hot springs; at one place the springs are boiling.

Club and Society Notes

AN INVESTMENT OF \$14,000,000 IN BRAZILIAN IRON

Subject of Los Angeles Mineralogical Society

The speaker at the July 19th meeting of Los Angeles Mineralogical Society was Mr. K. E. Bensusan, Australian mining engineer, who gave interesting facts and figures regarding the development of iron mines in Itabira, Brazil, which have been made possible thru a \$14,000,000 U. S. loan. Cane Peak is said to be practically a solid mountain of iron, which is more than twice as rich as the Minnesota ores. It is estimated that there are 120 million tons of the highest grade iron ore, 69.6% iron. It was extremely difficult to handle because they could not smelt it. Development of this area was hampered by lack of transportation, although these "iron mountains" had been known for over 200 years. Mr. Bensusan told of the difficulties which have been encountered, which seemed almost insurmountable, railroads had to be built, also roads, and docks for loading at the nearest port, and a town so the workers would have a place to live. It is said that it would take 30 years to remove all the ore from this peak and in this area are also large deposits of mica and other minerals. There is no coal nor oil for fuel, so they have to depend entirely upon charcoal.

During Mr. Bensusan's talk, his wife and son projected some photographs of the project and of native life, by means of a "Delineoscope" supplied by Henry Lende of Spencer Lens Company, which added much to our understanding of the difficulties of establishing an industry in Brazil.

Sr. Octavio Augusto Dias Carneiro, Vice Consul of Brazil at Los Angeles, and his beautiful wife, were guests of the Society and Senor Carneiro gave a short talk, emphasizing the problems of industry in Brazil. Many Brazilian artifacts were also displayed and explained by Mrs. Bensusan, who had been with her husband at Itabira. One subject of special interest was a large copper pan with brass handles, said to be essential equipment in every household, as it is used for cooking beans, washing dishes or washing the baby, or any other purpose.

Messrs. Newell, Sherman and Chuckawalla Slim brought some fine mineral specimens for exhibit. The door prize, a beautiful fluorite specimen, was won by Fern Schwartz and Mr. Ferguson and Ben Schwartz were winners in the book raffle.

An encore was held of the auction, which was a feature of the June meeting, and several fine specimens were auctioned, also a very

clever etching by our own Miss Dunlap, called "What the Heck!"

A "field trip" to the Lehman home was announced for August 19th and it is expected that many "foreign" rockhounds will attend, bringing their own picnic rations, of course. A similar occasion last year was so much enjoyed that it bids fair to become an annual event.

(Howard Paget, Publicity Chairman)

San Fernando Valley Mineral Society

No points, coupons or priorities were needed by those who attended the annual Auction sale held by the San Fernando Valley Mineral and Gem Society, the evening of August 9th at the Valley Vista Womans Club, North Hollywood, Calif. An annual affair, in pleaser years these Auctions were accompanied by a pot luck dinner, lack of points prevented a dinner this year, but refreshments were served during intermission by the society, and the variety of articles, mineral specimens, gems, gem materials, unusual rock formations, novelties, antiques and rarities offered for sale compensated for the lack of food. All specimens were donated, and many rare and beautiful pieces were sold for a fraction of their real value. Funds raised by these sales are devoted to the needs of the society, the greatest of which is a Club house. The society has become noted for its programs, its lectures and its social features, their meetings are held the second Tuesday of each month at 12611 Vanowen Street, North Hollywood, the society has not tried aggressively to increase its membership, but having lost several members to the service and other war activities a limited number of applications are being accepted. Aside from its scientific and social activities the society has donated lapidary equipment and a generous supply of gem materials to the Birmingham Hospital at Van Nuys where many veterans are learning the art of lapidary. When gasoline is plentiful field trips to interesting mineral and gem deposits are taken. A "Days of 49er" dance was held in April, and elaborate plans are being made for parties on Halloween, Thanksgiving and Christmas. Visitors are always welcome and those interested in other hobbies as well as mineralogy and lapidary will find the meetings and lectures highly interesting.

C. Hamer, Pub. Chm.

Queens Mineral Society

A meeting of the Society was held on August 2nd, 1945, at its headquarters in Richmond Hill, N. Y. It was called to order at 8:40 p.m. There were 24 members and guests present.

The proposed trip to Rutgers University for August 5th was postponed until October 21st.

The program committee announced that for September Miss Grothen and Mr. Maynard would speak; for October a talk from a representative of the Vanadium Corporation; for November — Paterson minerals; for December — an X-ray demonstration at the Pica Laboratory in New York, also an informal supper.

The meeting was turned over to the club members to speak on their best or most interesting specimens, which they had previously been requested to bring.

Mrs. Segeler — chabazite from Prospect Park quarry, Paterson, N. J.

Mrs. Marcin — siderite crystals from Roxbury, Conn.

Mr. Lisle — fluorescent dolomite from Mirabel quicksilver mine, Mt. St. Helena, Clear Lake, Calif.

Mr. Marcin — natrolite from Snake Hill, N. J.

Dr. Trautz — cuprite crystals, locality unknown.

Mr. Maynard — gem tourmaline from Newry, Me.

Mr. McKown — pectolite from New St. quarry, Paterson, N. J.

Mr. Segeler — kyanite from Celo mine, Burnsville, N. C.

The meeting adjourned at 10:30 p. m.

Respectfully submitted
T. Fredericks, Secretary.

Pacific Mineral Society

At the August 21, 1945, meeting of the Society, Victor M. Arciniega was the speaker whose subject was "Geology of Gems".

The Society meets at the Asbury Apt. Hotel, in Los Angeles, Calif.

Texas Mineral Society

At the June meeting, the Texas Mineral Society elected the following officers: Raymond C. McIver, president; J. D. Churchill, vice-president; A. O. Phipps, secretary-treasurer; Mrs. William H. LaDew and Mrs. J. D. Churchill, directors.

At the July meeting style trends in jewelry was discussed by Carl Flaxman and Raymond Hadon. Many interesting pieces of jewelry were shown to illustrate the trend from ancient times to the present day. On display at the meeting were cabochons cut and polished by various members of the club.

J. D. Churchill
Director of Publicity

**The Gem and Mineral Section
of the Buffalo Society of Natural Sciences**

The Gem Section organized last spring has held no formal meetings during the summer but has carried on considerable individual and informal group activity. Several of the members employed a teacher to direct a class in gem mounting, and they produced some interesting and attractive jewelry. The lapidary equipment at the Science Museum has been available to Section members Saturday and Sunday afternoons and a number of nice gems have been cut.

Beginning October 3, Section meetings at the Science Museum will be resumed on the first and third Wednesdays of each month at 8:00 P. M. A varied program for the winter includes these subjects:

Lectures on mineralogy, gem crystallography, gem identification, synthetic and artificial stones, gem optics, etc.

Demonstrations of cutting and polishing on varied equipment, gem mounting, hard and soft soldering, etc.

The Section members have worked out an instruction plan for persons inexperienced on lapidary equipment, and interested persons, either beginners or advanced, amateur or professional, in and around Buffalo are invited to Section meetings, all of which are open to the public.

Information on the Section's activities can be had by calling its President, Thomas G. Munroe, at University 5202 (office) or Garfield 7559 (home).

Marquette Geologists Association

In the July, 1945, issue of the Association's *Bulletin*, Stevens T. Norvell has a most interesting article entitled "The Emergency Kit." To meet emergencies when out in the field, Mr. Norvell carries with him always, a small, light emergency kit (not over 2 pounds in weight) in which are packed a pencil type flashlight, an extra pair of bifocals, tiny compass, a dozen matches in a waterproof container, candle, small package malted milk tablets, tweezers, a short piece of soft wire, and a small pair of pliers.

The Association meets at the Academy of Sciences, Chicago, Ill.

New Jersey Mineralogical Society

Dr. C. H. Moore, of the National Lead Co., was the speaker at the August 7th, 1945, meeting of the Society which meets at the Public Library, Plainfield, N. J. The subject of Dr. Moore's talk was "The real story of staurolites".

A special picnic meeting was held by the Society at Cedar Brook Park, Plainfield, on Sunday, August 19th.

Boston Mineral Society

Milford W. Wall was the speaker at the August 7, 1945, meeting of the Society which meets at the New England Museum of Natural History, Boston, Mass. The subject of Mr. Wall's talk was "Black Hills and Bad Lands of South Dakota", illustrated by kodachrome slides.

Mineralogical Society of Southern California

The 2nd summer meeting of the Society was held at the Pasadena Public Library, Pasadena, Calif., on August 13, 1945. A double feature program was presented covering one of the most interesting localities in the United States. The first speaker was H. Stanton Hill whose subject was "Lead and zinc deposits of the Mississippi Valley". The second speaker was Ralph Dietz whose subject was "The Tri-State District".

Northern California Mineral Society

The following activities of the Society took place during August, 1945:

August 3rd — Business meeting.

August 15th — General meeting at the Public Library, San Francisco, Calif.

August 22nd — Micro-mount meeting.

August 31st — Laboratory night.

At the general meeting, Bert Van Cleve, of the Owens-Illinois Glass Co., was the speaker whose subject was "Glass — the servant of man".

Pomona Valley Mineral Club

A group of interested persons met on July 10, 1945, with Mr. and Mrs. Wilson E. Thompson, in Pomona, Calif., to form the Pomona Valley Mineral Club. The following officers were elected:

President — Hollis B. Page

Vice-President — Miss Geneva B. Dow

Secretary-Treasurer — Mrs. Wilson E. Thompson

Membership will be limited to one hundred persons.

The Club is looking forward to an interesting year of mutual improvement in the art of cutting and polishing gems and enlarging their fund of geological knowledge.

Mrs. Wilson E. Thompson, Sec.

Southwest Mineralogists

The social and educational meeting of the Southwest Mineralogists was held on July 20th. The speaker was Victor M. Arciniega and the subject of his talk was "Crestmore".

This proved to be very instructive as the Club had planned a trip to this location for the following Sunday. About 50 club members and their friends attended this the first field trip in many months.

The Club meets at Harvard Playground in Los Angeles, Calif.

Marie Stager, Corres. Sec.

Yavapai Gem and Mineral Society

This is to announce the organization of Prescott's new rock society, the Yavapai Gem and Mineral Society.

Yavapai means "the people of the rocks" and comes from Prescott's Yavapai Indians. It is also the name of our county.

The following officers were elected for the ensuing year:

Alvin A. Hanson, President

H. L. Womack, Vice-President

Ida Smith, Secretary

Moulton B. Smith, Treasurer

Mrs. J. Bryant Kassey, Receptionist

A De Angelis, Membership Chairman

Other committee chairmen to be appointed will be refreshments, display, field, and sales-table.

The society was organized on July 26, 1945.

Ida Smith, Secretary
Box 1084, Prescott, Ariz.

Las Chispas Mine, Sonora, Mexico

One of the great mines of Mexico, which is especially familiar to collectors due to its fine silver minerals, is the Las Chispas silver mine of northern Sonora. The mine is about 15 miles southeast of Arizpe, in northwestern Mexico. Among the minerals found in the mine (the orebody is in lavas, tuffs, and breccias) are:

Argentite: Dark lead-gray crystals.

Chalcopyrite: Small masses and crystals associated with rock crystal, stephanite, amethyst, etc.

Polybasite: Iron black crystals, generally found loose in collections, also crystallized.

Pyrargyrite: Deep red crystals with rock crystal and chalcopyrite crystals.

Quartz (Amethyst): Fine crystals. The Editor of *Rocks and Minerals* has a loose 6 1/2 inch crystal on which are attached a number of smaller amethyst crystals, in parallel growths, together with stephanite crystals, chalcopyrite crystals, and rock crystals.

Quartz (Rock Crystal): Small crystals associated with amethyst, chalcopyrite, etc.

Stephanite: Very fine black crystals and crystal groups associated with chalcopyrite, amethyst, etc.

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... With Our Dealers ...

A. L. Jarvis, of Watsonville, Calif., has some nice preform cabochons in stock — ready to sand and polish.

A summer special is a feature this month of the West Coast Mineral Co., of La Habra, Calif.

Wilfred C. Eyles, of Bayfield, Colo., reports that the desert is so hot at this time of the year he has permitted the snakes to take over till fall. Apparently this particular desert is a favorite locality for interesting minerals.

The best in mineral specimens! So say Ward's Natural Science Est., Inc., of Rochester, N. Y., in their advertisement this month.

Wyoming Minerals, of Laramie, Wyo., have some attractive sky-blue celestite in stock. Do you need any of this strontium sulphate?

A new advertiser this month is "Compleat" Lapidary, of Burbank, Calif., who features two attractive lapidary machines. Better order one!

Fluorite crystal groups from Rosiclare, Ill., are offered collectors by Roberts and Stevens, of Monterey Park, Calif.

Another new advertiser this month is Krueger Lapidaries, of Los Angeles, Calif., who have some attractive gem bargains. This is a new concern and it has a large stock of cut stones.

And still another new advertiser is Mrs. B. F. Nonneman, of Salinas, Calif., who has some beautiful cutting material to intrigue our readers.

The Hermosa Gem and Mineral Shop, of Durango, Colo., specializes in local gemstones and minerals. What do you need from Colorado?

Want to buy a mineral collection? Contact Hans Anderson, of St. George, Utah.

The H. E. Powell Co., of Little Rock, Ark., are featuring this month some cutting and polishing material.

The Ozark Biological Laboratories, of Hot Springs National Park, Ark., offer collectors one more chance to obtain some fine quartz phantoms from Arkansas.

E. A. Baut, of Eureka, Calif., specializes in diamonds — polished and rough.

Thompson's Studio, of Pomona, Calif., has been using the classified columns of *Rocks and Minerals* for a number of months but in this issue it has taken a $\frac{1}{2}$ page space and is featuring quality fluorescent materials.

The Wiener Mineral Co., of Tucson, Ariz., has another selection of fine specimens in this issue.

James W. Riley, of Springfield, Ohio, will be traveling for a few months and so his shop will be closed pending his return.

Vreeland Manufacturing Co., of Portland, Ore., is featuring in this issue (aside from its regular ads) Vreco Diamond Saws.

Warner & Grieger, of Pasadena, Calif., feature a long list of fluorescent minerals, also one of preform cabochons.

Note the page ad featuring uraninite and pitchblende — it belongs to Schortmann's Minerals, of Easthampton, Mass.

Do you like Nevada gems? R. L. Taylor, of Battle Mountain, Nev., has some nice ones.

The Western Mineral Exchange, of Seattle, Wash., is featuring uraninite, gem slabs, arbors, saws, crystals and collections in its six ads.

National Mineral Supplies, of Kenmore, Wash., have some specials this month.

Just as we were going to press, another new advertiser was added to our list — Chas. E. Hill, of Phoenix, Ariz. He features Arizona gems and minerals.

An Emery Occurrence in Australia

Emery has been found at a locality about 4 miles southwest of Mt. Broome, near Derby, in northern Western Australia. It occurs in veins or lenses associated with a shaly band in metamorphosed sediments. The emery is a tough, dark-fined-grained rock and if worked it will not doubt be used as an abrasive.

VRECO

LAPIDARY SUPPLIES



VRECO Lapidary Equipment will again be available just as soon as our facilities can be converted, and our NEW line of equipment put into production. Watch for announcements. In the meantime, let us serve you with these highest quality **VRECO** supplies.

VRECO DIAMOND SAWS . . . give you better performance . . . longer life . . . faster cutting.

6-inch	\$4.50	12-inch	\$ 8.75
8-inch	5.50	14-inch	11.00
10-inch	6.80	16-inch	13.75

Arbor hole sizes: $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{7}{8}$ ", 1" or $1\frac{1}{4}$ ". Be sure to specify size required.

VRECO GRINDING WHEELS are made expressly for gem stone grinding.

Size	6 x $\frac{3}{4}$ "	8 x 1	8 x 1	10 x 1	10 x $1\frac{1}{2}$	12 x 1	12 x $1\frac{1}{2}$	12 x 2
100 grain 6" 100 & 180	2.10	\$2.40	\$3.60	\$5.00	\$7.00	\$6.90	\$ 9.60	\$12.30
220 grain	2.25	2.60	3.90	5.30	7.50	7.50	10.40	13.30
Minimum Arbor Hole	$\frac{1}{2}$ "	$\frac{1}{2}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	1"
Shipping Weight	2 lbs.	3 lbs.	5 lbs.	7 lbs.	9 lbs.	9 lbs.	14 lbs.	17 lbs.

Arbor hole sizes above minimum, $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{7}{8}$ ", and 1". 12" wheels with $1\frac{1}{4}$ " hole also available.

VRECO DRESSING BRICKS are an indispensable aid to keeping wheels trued.

8" x 2" x 1" Dressing Brick.....\$.85

ABRASIVE GRAIN . . . for recoating sanding cloth, for mud sawing or lapping. Silicon-carbide grains in grit sizes 60, 80, 100, 120, 150, 180, 220, also F (240), FF (300), and FFF (400).

50c per lb. in single lb. lots	30c per lb. in 6 to 99 lb. lots
35c per lb. in 2 to 5 lb. lots	23c per lb. in 100 lb. lots or more (Postage extra)

POLISH POWDER . . . Tripoli Polishing Powder, 2 lbs.....\$.85

